



Natural Heritage & Endangered Species Program

Commonwealth of Massachusetts
Division of Fisheries & Wildlife
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MASSACHUSETTS SPECIES OF SPECIAL CONCERN

Hessel's Hairstreak (*Mitoura hesseli*)

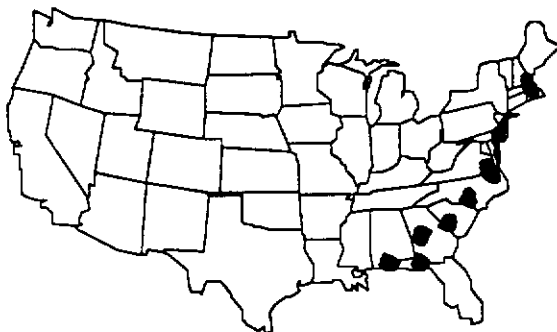
DESCRIPTION: Hessel's Hairstreak is a small butterfly with a wingspan of 22–25 mm (7/8 to 1 in.). The upper side of the wings is dark brown in the male and somewhat reddish in the female. The underside of the wings of both sexes has large patches of brilliant green with white markings. The forewing has one white submarginal band. The hindwing has two white dots also bordered by brown. There are scattered brown patches on the lower surface of the hindwings, which also have tails. Hessel's Hairstreak has the darting flight of short duration typical of all the hairstreaks. In Massachusetts, look for this butterfly around the tops of, or resting on, Atlantic white cedars (*Chamaecyparis thyoides*) during the last two weeks of May. It can be flushed by gently brushing the sunlit top branches of these trees.



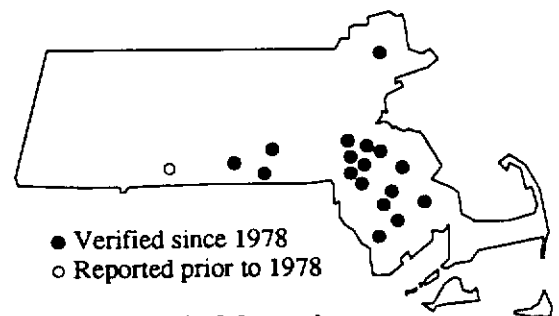
SIMILAR SPECIES IN MASSACHUSETTS: The Olive Hairstreak (*Mitoura gryneus*) and Hessel's Hairstreak have virtually identical appearances. Hessel's was not recognized as distinct from Olive until 1949. The Olive Hairstreak is a widespread colonizer that feeds only on red cedar (*Juniperus virginiana*). The non-specialist can usually distinguish the two by their habitat, since Hessel's is associated only with Atlantic white cedar and Olive normally with red cedar. Technically, the Hessel's Hairstreak can be distinguished from the Olive Hairstreak by the wingbar on the outside of the hindwing near the anal area: in the Hessel's it points in, in the Olive it points out.

Howe, William H. 1975. The Butterflies of North America. Doubleday & Co., Inc., New York.

RANGE: Hessel's Hairstreak is an inhabitant of the Atlantic coastal plain, and occasionally the Piedmont, ranging from southern New Hampshire to Northern Florida. This butterfly's range is discontinuous, and local in Atlantic white cedar swamps.



Documented Range
of Hessel's Hairstreak



Distribution in Massachusetts

HABITAT IN MASSACHUSETTS: Hessel's Hairstreak is found only in or adjacent to Atlantic white cedar (*Chamaecyparis thyoides*) trees in acid bogs or swamps. A discontinuous canopy may be desirable, as the male butterflies, being territorial, have been observed perching in the sun waiting for a passing female or rival male. Like other butterflies, it produces no heat itself so it uses heat absorbed from sunlight. Much of its time is occupied with sunning itself for this purpose.

LIFECYCLE/BEHAVIOR: Most reproductive activities occur on host Atlantic white cedar trees. In New England there is only one brood each year, but further south there may be two broods. The adult butterfly lives for less than two weeks, laying its eggs in late May or early June on the tips of the branches of its host. The eggs, which are green changing to yellow-white, measure 0.3 mm by 0.6 mm. Within two weeks the eggs hatch into dark bluish-green caterpillars with oblique white bars along the sides. This coloration makes the caterpillars difficult to see against the needles of the cedar. During the larval stage, which lasts about a month, the caterpillars may grow to 16 mm (5/8 in.). The caterpillar pupates in early July and overwinters in the dark brown, 10 mm (3/10 in.) chrysalis, emerging as a butterfly the following May. It is thought that the chrysalis overwinters among the leaf litter on the ground or underneath the bark shards on the host tree. Freshly-emerged individuals may be found on damp earth along roads through white cedar swamps or bogs.

Hessel's Hairstreak larvae feed almost exclusively on the new growth of the Atlantic white cedar. Though rarely seen on flowers in New England, adults have been known to feed on the nectar of highbush blueberry, chokeberry, or other nearby flowers. During the course of the day, the butterflies rest on the trees near the ground, then move gradually higher and higher in response to the ascent of the sun. When the sun is at zenith, the butterflies are up in the tops of the cedars, well out of sight or reach. There they court, mate, and lay eggs. As the sun drops in the afternoon, the butterflies follow, descending the cedars until they are near the ground at sunset. The butterflies are able to locate the position of the sun even on cloudy days because they can see polarized ultraviolet light - light that is invisible to people. This species is best searched for very early or late in the day (after 4:00 p.m.) when they come down from the treetops to nectar. The adult butterfly is very docile when feeding on nectar in flowers.

POPULATION STATUS IN MASSACHUSETTS: Hessel's Hairstreak is a "Species of Special Concern" in Massachusetts. Since 1978, there have been 17 populations in 17 towns reported and verified to the Massachusetts Natural Heritage and Endangered Species Program. A search of Atlantic white cedar swamps may reveal more locations for this species than is currently known. It is absent from white cedar swamps that to us appear the same as sites where it is found. Reasons for this absence may include the former spraying of pesticides to control mosquitoes and gypsy moths, and past clearcutting of the cedars in large areas. Hessel's Hairstreak is thought to have been extirpated from Maryland. There is only one site where it is known to exist in Connecticut. Rhode Island found nine sites to date, others expected with further inventory. Its status is unknown in New Hampshire. The only states within its range where it is not considered rare are New Jersey and North Carolina, though it is not common anywhere. This species is probably often overlooked due to its inaccessible habitat and secretive behavior.

MANAGEMENT RECOMMENDATIONS: Destruction of white cedar swamps through cutting or flooding (which may happen with road building and development), the spraying of insecticides, and habitat lost through fire suppression resulting in the community becoming red maple swamp, are the major threats to the Hessel's Hairstreak. If a population in a swamp is destroyed by spraying, excessive fire, or logging, recolonization is unlikely unless there is a swamp nearby that harbors Hessel's Hairstreak. It has never been collected more than 100 yards away from a cedar swamp and is not thought to fly far.

It should be noted that recently, a new threat has developed in the form of excessive numbers of deer in some places. Excessive winter browsing often prevents burned or logged cedar swamps from regenerating. Such sites then become hardwood swamps.

Regeneration of Atlantic white cedar is thought to be best when the canopy is open: it does not regenerate well in shade, even of its own species. Seed trees need to be left to reestablish the Atlantic white cedar. Atlantic white cedar swamps, then are often naturally even aged monocultures that have resulted from some major disturbance that allows the regeneration.